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to take a more prominent place in Section F. At Buffalo we expect to see still further evidence of this awakening, not only in the number of papers presented, but chiefly in the care shown in their preparation.

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### The Botanical Club of the A. A. A. S.

The attendance at Ann Arbor was much larger than its most sanguine friends had anticipated, there being eighty-five names entered upon the register. This gave the club twenty-three and one-third per cent. of the total attendance of the association, more than twice as great a proportion as heretofore. Thirty-seven of the members recorded the department of botany in which they are the most interested. These were entered under twenty different headings, but may be reduced to four, as follows: flowering plants and ferns, nineteen; cryptogams, fourteen; physiology, four; and paleophytology, two.

Six sessions were held in all—four in the morning and two in the afternoon—each an hour long, all in the room of the biological section, with the exception of the one on Friday evening, which, by invitation, was changed to Professor Spalding's botanical laboratory. The numbers present at the sessions exceeded seventy-five for several and dropped the lowest at the laboratory gathering, when there were only twenty-eight.

The papers, notes and discussions were of just the kind for which the club was specially founded. Those who heard them can not but have received much valuable information applicable to personal work, as well as having the pleasure of listening to the results of recent studies. The resumé which follows is necessarily very brief, and often omits the items which the listener may have found the most directly serviceable for his own needs.

THURSDAY, August 27, 9 A. M. The chairman made several suggestions of topics for the consideration of the club, which he had already formulated in the last number of the *American Naturalist*: 1. The necessity of uniformity in the use of English names of plant diseases and of the fungi producing them. 2. The advantage of uniform pronunciation of the Latin names of plants. 3. The distribution of botanical literature among the several journals so that each shall represent only certain departments of the science. 4. The relations of the botanists of the country to the National Herbarium at Washington.

In the discussion which followed it was clearly brought out that at present great confusion exists in the use of English names of plant diseases, *e. g.*, the term *blight* is given to the most diverse forms of fungi, as well as to many kinds of disease either partially or wholly killing the plant. To some extent this confusion occurs in most of the English names now in use. It was also shown that the supply of English names was not adequate to the present needs of the subject. Mr. Arthur suggested that it might be possible to prepare a list of English names of fungous parasites and the diseases which they cause, which should be taken as the standard for this country, something in the same way as the American Pomological Society exercises authority over the naming of fruits. After considerable discussion favorable to the suggestion, a committee was appointed to take the matter in charge and report at the meeting next year. The committee are J. C. Arthur, of Geneva, N. Y.; W. G. Farlow, of Cambridge, Mass.; W. Trelease, of St. Louis, Mo., who are to act in conjunction with F. L. Scribner, of Washington, D. C., who is investigating plant diseases for the government.

The second topic was only partially discussed, but the prevalent opinion seemed to be that, although there was much annoyance from the variety of pronunciations, nothing could at present be done to secure uniformity.

The third topic was urged by the chairman, who represents the botanical department of the *American Naturalist*. The representatives of the BOTANICAL GAZETTE preferred to select their material from the whole range of botanical literature. No representatives of the other journals wholly or partially devoted to botany were present, and no result was reached.

The fourth topic was taken up by Mr. Scribner, who spoke of several ways in which the national herbarium might be of direct service to the botanists of the country, and on the other hand of the duty which the botanists owe to the herbarium in the way of contributions of new material. It was brought out in the discussion that few present had any knowledge of the herbarium, or of the facilities for consultation. It was therefore urged that the first requirement was a full statement of the contents and condition of the national herbarium, in order that botanists may know what facilities it offers for present study, and what is desired to make it more complete. The club then appointed J. M. Coulter and W. J. Beal a committee to take the matter under advisement and report at a later session.

THURSDAY, August 27, 5 P. M. Professor Beal gave some

notes on teaching botany. He had found the movement of protoplasm to show well in the hairs on the young buds of many species of plants. The stem of *Smilax rotundifolia* served excellently for histological study. He was of opinion that usually too much time is occupied by lectures, and not enough by laboratory work. He had had students work in various ways, but obtained the best results when considerable time was given to each plant and fewer plants used. Professor Burrill finds difficulty in getting sufficient time for laboratory work. Professor Coulter would have the laboratory open from morning till 4 p. m., and permit students to come and go as convenient to them. Professor Bessey called attention to the scientific course in the University of Nebraska, which is arranged on a plan of alternation. Botany comes but twice a week, which gives plenty of opportunity for laboratory work. The same is true of zoology, physics, chemistry, etc. This arrangement works well when the several professors act harmoniously.

The subject of reagent bottles was then taken up and various devices illustrated and described, followed by a discussion of the several phases and methods of section cutting.

FRIDAY, August 28, 9 A. M. The club received the announcement that two of its former members, Dr. N. L. Britton and Miss Elizabeth G. Knight, both of New York City, had matrimonially united their fortunes on the preceding day, which accounted for their absence from the present meeting. The hearty congratulations of the club were forwarded to them by telegram.

The committee on the relations of the botanists to the national herbarium reported as follows, and its report was adopted by the club:

It is the desire of the Botanical Club of the American Association for the Advancement of Science to assist in making the national herbarium worthy of its name, that it may offer every facility for consultation and study. They would therefore recommend that as a step in this direction the Department of Agriculture make known to botanists

1. The contents of the herbarium.
2. The number of its types.
3. The completeness of its preservation.
4. Its convenience for consultation.

Committee { J. M. COULTER.  
W. J. BEAL.

Dr. Halsted exhibited specimens of *Peronospora* and *Æcidium* from Spirit Lake, Iowa. The former, *P. viticola*, was on wild grapes and so luxuriant as to cover the whole plant with a white velvet and prevented its reaching more than a foot or so in

height. The latter was on *Euphorbia*, giving the host a peculiar upright growth.

Professor Coulter gave some notes on plants collected by the Greeley expedition to the Arctic regions.

Professor Barnes called attention to the peculiar mode of dehiscence of *Campanula Americana*, by means of a pair of circular trap doors on the sides of the capsule.

Professor Lazenby gave some additions to the published lists of the flowering plants of Ohio.

FRIDAY, August 28, 7 P. M. This meeting was held in the botanical laboratory of the University of Michigan. Professor Spalding first pointed out the facilities of his laboratory. A general discussion ensued on instruments, books of reference, laboratory methods, drawing, courses of study, etc., participated in by Professors Spalding, Bessey, Burrill, Halsted, Campbell, Barnes, Beal and Coulter. This was a specially delightful and profitable meeting to those who were present.

MONDAY, August 31, 9 A. M. The election of officers for the coming year resulted in the selection of J. M. Coulter as chairman and J. C. Arthur as secretary.

The subject of the work at Washington on the diseases of plants was then introduced. The following address was presented, and after some discussion upon the best wording of the last clause, was adopted as the unanimous expression of the club:

*To the Honorable Commissioner of Agriculture:*

The members of the Botanical Club of the A. A. A. S., recognizing the importance of the movement so happily inaugurated by you, whereby provision has been made for the investigation of plant diseases, would hereby assure you of their hearty support in all your efforts to procure the necessary means for carrying out the work proposed. Inasmuch as researches of this nature will require a considerable expenditure of money, the members of the club hereby pledge themselves to use their influence in inducing their representatives in Congress to make a liberal appropriation therefor in accordance with your estimates.

Mrs. Walcott, of Boston, suggested that a copy of the address be furnished each member of the club, to be presented to his representative in Congress, a suggestion which met with approval.

Professor Burrill spoke of a form of grape rot which had only been recently recognized in this country as a distinct disease, although well known in Europe. It has usually been referred to *Phoma*, but does not have its spores in minute cavities or perithecia as in that genus. It is *Sphaceloma ampelina* DeBy. The spores are unable to germinate on a dry surface, so that shel-

tering the grape clusters prevents its attack. He also exhibited grape leaves bearing *Phoma uvicola*, a mode of occurrence which had been denied.

Mrs. Walcott gave an account of a *Campanula*, probably *C. Americana*, which made its appearance in some unaccountable way in a row of wild flowers raised from seeds from other localities. These seeds were sown in 1880, and the plants moved to another spot last season. This year there appeared two stalks of the species referred to, apparently, but having some of the flower buds two inches long, the calyx bristly and the flower in eights throughout. She had also observed seedlings of *Yucca filamentosa* near a plant of that species in the garden.

Considerable discussion followed. Mr. Campbell had known of *Yucca* fruiting in Michigan. E. F. Smith recited a case in which weed seeds had appeared to lie dormant for fifteen years or more. It was suggested that in this case there might have been a succession of very depauperate individuals, as some large weeds can fruit and so perpetuate themselves without reaching more than an inch or so in height, and thus escape observation.

Professor Barnes called attention to the erroneous figures of the stomata of *Marchantia* in all English works on botany. They are shown with six cells in circumference, whereas they have only four. The shapes of the innermost cells, the true guard-cells, and of the outermost cells of the chimney-like stoma are not correctly drawn.

F. L. Scribner exhibited some fine drawings of grasses from which photo-engravings had already been taken, and explained how they were made.

TUESDAY, September 1, 9 A. M. A paper from George U. Hays of St. Johns, N. B., on botanical features of New Brunswick was read, which is published in full in the GAZETTE.

D. H. Campbell gave some hints on growing the spores of *Botrychium ternatum*. The spores are devoid of chlorophyll, both before and after germination, which suggests that they should be grown in rich earth or humus. When prothallia of similar plants have been found they have been below the surface of the ground, and he had devised a plan for sowing the spores under the soil yet so as to be kept under constant observation. The spores of most ferns were germinated in water at ordinary room temperature, and when desiring to carry the growth very far were transferred to some solid substance and kept moist under a bell-jar.

The same speaker had found tabular crystals in the base of

the petioles of *Onoclea Struthiopteris*, which the usual micro-chemical tests proved to be oxalate of lime.

Professor Bessey explained a convenient form of herbarium doors.

J. C. Arthur exhibited specimens of barley, the so-called *Hordeum trifurcatum*, in which the awn of the flowering glume is jointed and bears more or less perfect flowers.

Dr. Walker of New Orleans spoke of the dwarfing of corn grown in a flower pot in his window. Others mentioned similar phenomena.

Mr. Arthur called attention to the erroneous use of the word fungoid by nearly all English speaking botanists. It is properly applied to growths whose origin is not known or which bear some resemblance to a fungus. It can not, however, be properly applied to a fungus or its product. The word almost always intended is either the noun *fungus* or the adjective *fungous*. As a spheroid can not be a sphere, so a fungoid growth can not be a fungus or a fungous growth.

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### Entertainment of the Botanists at Ann Arbor.

Whatever good feeling and sociability may exist, it can not be disputed that the enjoyment and satisfaction to be derived from large conventions, in which the majority are strangers to each other, are greatly enhanced by social gatherings arranged to bring those of like tastes together. It is on this account that the receptions, excursions, etc., for the Botanical Club may be considered of not much less importance than the other features of the meetings, especially in view of the fact that through contact and personal acquaintance the general elevation of the standard of botanical thought among the members is largely affected.

The only gathering at Ann Arbor specially for the botanists was the excursion by carriage to tamarack swamp. The success of this delightful and thoroughly profitable trip was due to the efforts of Professor Spalding, to whom the club is under many obligations.

As it approached 3 o'clock, Monday afternoon, there was a noticeable exodus from the biological and other sections of the association, and the members of the club and some of their friends were soon seated in the various vehicles waiting outside ready for the start. The excursion was restricted to members of the club, and to such others as provided their own convey-